Oral Chelation and Nutritional Replacement Therapy for
Heavy Metal Toxicity and Cardiovascular Conditions

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University of Michigan hosted their 25th annual conference on heavy metals. Scientists and researcher from all over the world came to share information on solutions to reverse and prevent further heavy metal poisoning of our earth's water, air, and soils.

Extreme Health was the only company invited that had a solution for the already poisoned human.

Part 1 of a 3-part series

Part 1: Health effects of exposure to heavy metals.


Part 3: Ingredient rationale of Oral Chelation & Age-less Formula; Summary of clinical studies; Conclusion.

Part 1

Extreme Health has designed a formula to help people recover from heavy metal toxicity and restore and maintain their cardiovascular health. The program is based on oral chelation and the proper nutritional replenishment formula, which are proving effective in clinical trials.

THE HEAVY METAL HAZARD

Some metals are naturally found in the body and are essential to human health. Iron, for example, prevents anemia, and zinc is a cofactor in over 100 enzyme reactions. They normally occur at low concentrations and are known as trace metals. In high doses, they may be toxic to the body or produce deficiencies in other trace metals; for example, high levels of zinc can result in a deficiency of
Heavy or toxic metals are trace metals with a density at least five times that of water. As such, they are stable elements (meaning they cannot be metabolized by the body) and bio-accumulative (passed up the food chain to humans). These include: mercury, nickel, lead, arsenic, cadmium, aluminum, platinum, and copper (the metallic form versus the ionic form required by the body). Heavy metals have no function in the body and can be highly toxic.

Once liberated into the environment through the air, drinking water, food, or countless human-made chemicals and products, heavy metals are taken into the body via inhalation, ingestion, and skin absorption. If heavy metals enter and accumulate in body tissues faster than the body's detoxification pathways can dispose of them, a gradual buildup of these toxins will occur. High-concentration exposure is not necessary to produce a state of toxicity in the body, as heavy metals accumulate in body tissues and, over time, can reach toxic concentration levels.

Heavy metal exposure is not an entirely modern phenomenon: historians have cited the contamination of wine and grape drinks by lead-lined jugs and cooking pots as a contributing factor in the "decline and fall" of the Roman Empire; and the Mad Hatter character in Alice in Wonderland was likely modeled after nineteenth-century hat makers who used mercury to stiffen hat material and frequently became psychotic from mercury toxicity.

Human exposure to heavy metals has risen dramatically in the last 50 years, however, as a result of an exponential increase in the use of heavy metals in industrial processes and products. Today, chronic exposure comes from mercury-amalgam dental fillings, lead in paint and tap water, chemical residues in processed foods, and "personal care" products (cosmetics, shampoo and other hair products, mouthwash, toothpaste, soap). In today's industrial society, there is no escaping exposure to toxic chemicals and metals.

In addition to the hazards at home and outdoors, many occupations involve daily heavy metal exposure. Over 50 professions entail exposure to mercury alone. These include physicians, pharmaceutical workers, any dental occupation, laboratory workers, hairdressers, painters, printers, welders, metalworkers, cosmetic workers, battery makers, engravers, photographers, visual artists, and potters.

The Effects of Heavy Metal Toxicity

Studies confirm that heavy metals can directly influence behavior by impairing mental and neurological function, influencing neurotransmitter production and utilization, and altering numerous metabolic body processes. Systems in which toxic metal elements can induce impairment and dysfunction include the blood and cardiovascular, detoxification pathways (colon, liver, kidneys, skin), endocrine (hormonal), energy production pathways, enzymatic, gastrointestinal, immune, nervous (central and peripheral), reproductive, and urinary.

Breathing heavy metal particles, even at levels well below those considered nontoxic, can have serious health effects. Virtually all aspects of animal and human immune system function are compromised by the inhalation of heavy metal particulates. In addition, toxic metals can increase allergic reactions, cause genetic mutation, compete with "good" trace metals for biochemical bond sites, and act as antibiotics, killing both harmful and beneficial bacteria.

Much of the damage produced by toxic metals stems from the proliferation of oxidative free radicals they cause. A free radical is an energetically unbalanced molecule, composed of an unpaired electron, that "steals" an electron from another molecule to restore its balance. Free radicals result naturally when cell molecules react with oxygen (oxidation) but, with a heavy toxic load or existing antioxidant deficiencies, uncontrolled free-radical production occurs. Unchecked,
free radicals can cause tissue damage throughout the body; free-radical damage underlies all degenerative diseases. Antioxidants such as vitamins A, C, and E curtail free-radical activity.

Heavy metals can also increase the acidity of the blood. The body draws calcium from the bones to help restore the proper blood pH. Further, toxic metals set up conditions that lead to inflammation in arteries and tissues, causing more calcium to be drawn to the area as a buffer. The calcium coats the inflamed areas in the blood vessels like a bandage, patching up one problem but creating another, namely the hardening of the artery walls and progressive blockage of the arteries. Without replenishment of calcium, the constant removal of this important mineral from the bones will result in osteoporosis (loss of bone density leading to brittle bones).

Current studies indicate that even minute levels of toxic elements have negative health consequences, however, these vary from person to person. Nutritional status, metabolic rate, the integrity of detoxification pathways (ability to detoxify toxic substances), and the mode and degree of heavy metal exposure all affect how an individual responds. Children and the elderly, whose immune systems are either underdeveloped or age-compromised, are more vulnerable to toxicity.9

**Common Heavy Metals: Sources and Specific Effects**

Aluminum, arsenic, cadmium, lead, mercury, and nickel are the most prevalent heavy metals. The specific sources of exposure, body tissues in which the metal tends to be deposited, and health effects of each metal are identified below.

1. **Aluminum**

Sources of exposure: Aluminum cookware, aluminum foil, antacids, antiperspirants, baking powder (aluminum containing), buffered aspirin, canned acidic foods, food additives, lipstick, medications and drugs (anti-diarrheal agents, hemorrhoid medications, vaginal douches), processed cheese, "softened" water, and tap water.

Target tissues: Bones, brain, kidneys, and stomach.

Signs and Symptoms: Colic, dementia, esophagitis, gastroenteritis, kidney damage, liver dysfunction, loss of appetite, loss of balance, muscle pain, psychosis, shortness of breath, and weakness.

Among the patients I see in my practice, the highest aluminum exposure is most frequently due to the chronic consumption of aluminum-containing antacid products. Research shows that aluminum builds up in the body over time; thus, the health hazard to older people is greater.

D.R. McLaughlin, M.D., F.R.C.P. (C), professor of physiology and medicine and director of the Centre for Research in Neurodegenerative Diseases at the University of Toronto, states, "Concentrations of aluminum that are toxic to many biochemical processes are found in at least ten human neurological conditions."10 Recent studies suggest that aluminum contributes to neurological disorders such as Alzheimer's disease, Parkinson's disease, senile and presenile dementia, clumsiness of movements, staggering when walking, and inability to pronounce words properly.11 Behavioral difficulties among schoolchildren have also been correlated with elevated levels of aluminum and other neurotoxic heavy metals.26a

2. **Arsenic**

Sources of exposure: Air pollution, antibiotics given to commercial livestock, certain marine plants, chemical processing, coal-fired power plants, defoliants, drinking water, drying agents for cotton, fish, herbicides, insecticides, meats (from commercially raised poultry and cattle), metal ore smelting, pesticides, seafood
(fish, mussels, oysters), specialty glass, and wood preservatives.

Target tissues: Most organs of the body, especially the gastrointestinal system, lungs, and skin.

Signs and Symptoms: Abdominal pain, burning of the mouth and throat, cancer (especially lung and skin), coma, diarrhea, nausea, neuritis, peripheral vascular problems, skin lesions, and vascular collapse.

The greatest dangers from chronic arsenic exposure are lung and skin cancers and gradual poisoning, most frequently from living near metal smelting plants or arsenic factories.

3. Cadmium

Sources of exposure: Air pollution, art supplies, bone meal, cigarette smoke, food (coffee, fruits, grains, and vegetables grown in cadmium-laden soil, meats [kidneys, liver, poultry], or refined foods), freshwater fish, fungicides, highway dusts, incinerators, mining, nickel-cadmium batteries, oxide dusts, paints, phosphate fertilizers, power plants, seafood (crab, flounder, mussels, oysters, scallops), sewage sludge, "softened" water, smelting plants, tobacco and tobacco smoke, and welding fumes.

Target tissues: Appetite and pain centers (in brain), brain, heart and blood vessels, kidneys, and lungs.

Signs and Symptoms: Anemia, dry and scaly skin, emphysema, fatigue, hair loss, heart disease, depressed immune system response, hypotension, joint pain, kidney stones or damage, liver dysfunction or damage, loss of appetite, loss of sense of smell, lung cancer, pain in the back and legs, and yellow teeth.

Current studies are attempting to determine if cadmium-induced bone and kidney damage can be prevented (or made less likely) by adequate calcium, protein (amino acids), vitamin D, and zinc in the diet.\textsuperscript{12}

4. Lead

Sources of exposure: Air pollution, ammunition (shot and bullets), bathtubs (cast iron, porcelain, steel), batteries, canned foods, ceramics, chemical fertilizers, cosmetics, dolomite, dust, foods grown around industrial areas, gasoline, hair dyes and rinses, leaded glass, newsprint and colored advertisements, paints, pesticides, pewter, pottery, rubber toys, soft coal, soil, solder, tap water, tobacco smoke, and vinyl 'mini-blinds'.

Target tissues: Bones, brain, heart, kidneys, liver, nervous system, and pancreas.

Signs and Symptoms: Abdominal pain, anemia, anorexia, anxiety, bone pain, brain damage, confusion, constipation, convulsions, dizziness, drowsiness, fatigue, headaches, hypotension, inability to concentrate, indigestion, irritability, loss of appetite, loss of muscle coordination, memory difficulties, miscarriage, muscle pain, pallor, tremors, vomiting, and weakness.

The toxicity of lead is widely acknowledged. The greatest risk for harm, even with only minute or short-term exposure, is to infants, young children, and pregnant women. A federal study conducted by the Centers for Disease Control and Prevention (CDCP) in 1984 estimated that three to four million American children have an unacceptably high level of lead in their blood. Dr. Suzanne Binder, a CDCP official, stated, "Many people believed that when lead paint was banned from housing [in 1978], and lead was cut from gasoline [in the late 1970s], lead-poisoning problems disappeared, but they're wrong. We know that throughout the country children of all races, and ethnicities and income levels are being affected by lead [already in the environment]."\textsuperscript{13} In their book, 'Toxic Metal Syndrome', Dr.'s R. Casdorph and M. Walker report that over 4 million tons of lead is mined each year and existing environmental lead levels are at least 500
times greater than pre-historic levels.

In 1989, the U.S. Environmental Protection Agency (EPA) reported that more than one million elementary schools, high schools, and colleges are still using lead-lined water storage tanks or lead-containing components in their drinking fountains. The EPA estimates that drinking water accounts for approximately 20% of young children's lead exposure. Other common sources are lead paint residue in older buildings (as in inner cities) and living in proximity to industrial areas or other sources of toxic chemical exposure, such as commercial agricultural land. All children born in the U.S. today have measurable traces of pesticides, a source of heavy metals and chlorine-based chemicals, in their tissues.

Lead is a known neurotoxin (kills brain cells), and excessive blood lead levels in children have been linked to learning disabilities, attention deficit disorder (ADD), hyperactivity syndromes, and reduced intelligence and school achievement scores.

5. Mercury

Sources of exposure: Air pollution, batteries, cosmetics, dental amalgams, diuretics (mercurial), electrical devices and relays, explosives, foods (grains), fungicides, fluorescent lights, freshwater fish (especially large bass, pike, and trout), insecticides, mining, paints, pesticides, petroleum products, saltwater fish (especially large halibut, shrimp, snapper, and swordfish), shellfish, and tap water.

Target tissues: Appetite and pain centers in the brain, cell membranes, kidneys, and nervous system (central and peripheral).

Signs and Symptoms: Abnormal nervous and physical development (fetal and childhood), anemia, anorexia, anxiety, blood changes, blindness, blue line on gums, colitis, depression, dermatitis, difficulty chewing and swallowing, dizziness, drowsiness, emotional instability, fatigue, fever, hallucinations, headache, hearing loss, hypertension, inflamed gums, insomnia, kidney damage or failure, loss of appetite and sense of smell, loss of muscle coordination, memory loss, metallic taste in mouth, nerve damage, numbness, psychosis, salivation, stomatitis, tremors, vision impairment, vomiting, weakness, and weight loss.

The primary source of exposure to mercury is "silver" dental fillings (approximately 50% mercury when placed); over 225 million Americans have these fillings in their teeth. Mercury fillings release microscopic particles and vapors of mercury every time a person chews. Vapors are inhaled while particles are absorbed by tooth roots, mucous membranes of the mouth and gums, and the stomach lining.

In people with mercury amalgam fillings, measurements of the mercury level in the mouth ranges between 20 and 400 mcg/m3. Keep in mind that this is continuous exposure. The National Institute of Occupation Safety and Health places the safe limit of environmental exposure to mercury at 20 mcg/m3, but that is assuming a weekly exposure of 40 hours (the work week) and the mercury involved is outside the body. The Environmental Protection Agency's allowable limit for continuous mercury exposure is 1 mcg/m3 but, again, that is based on mercury sources outside the body. Neither figure addresses 24-hour-a-day exposure from mercury in one's mouth.

Hal Huggins, D.D.S., a specialist in the effect of mercury amalgams on health, reports that 90% of the 7,000 patients he tested showed immune system reactivity from exposure to low levels of mercury. In 1984, the American Dental Association (ADA), without providing scientific evidence, claimed that only 5% of the U.S. population is reactive to mercury exposure, and that this figure is insignificant. Meanwhile, the ADA mandates that dentists alert all dental
personnel to the potential hazards of inhaling mercury vapors.\textsuperscript{21} The Environmental Protection Agency (EPA) goes further, instructing dentists to treat mercury amalgam as a toxic material while handling before insertion, and as toxic waste after removal.\textsuperscript{22}

Mark S. Hulet, D.D.S., who conducts research on amalgam fillings, wrote a pamphlet for his patients, in which he cites five categories of pathological reaction to mercury fillings, as identified by dentists, doctors, and toxicologists. The categories are:

- **Neurological:** emotional manifestations (depression, suicidal impulses, irritability, inability to cope) and motor symptoms (muscle spasms, facial tics, seizures, multiple sclerosis)
- **Cardiovascular problems:** nonspecific chest pain, accelerated heart beat
- **Collagen diseases:** arthritis, bursitis, scleroderma, systemic lupus erythematosis
- **Immune system diseases:** compromised immunity
- **Allergies:** Airborne allergies, food allergies, and "universal" reactors.

One of the keys to mercury’s effects on health may be its ability to block the functioning of manganese, a key mineral required for physiological reactions in all five categories, notes Dr. Hulet.\textsuperscript{23}

6. **Nickel**

Sources of exposure: Appliances, buttons, ceramics, cocoa, cold-wave hair permanent, cooking utensils, cosmetics, coins, dental materials, food (chocolate, hydrogenated oils, nuts, food grown near industrial areas), hair spray, industrial waste, jewelry, medical implants, metal refineries, metal tools, nickel-cadmium batteries, orthodontic appliances, shampoo, solid-waste incinerators, stainless steel kitchen utensils, tap water, tobacco and tobacco smoke, water faucets and pipes, and zippers.

Target tissues: Areas of skin exposure, larynx (voice box), lungs, and nasal passages.

Signs and Symptoms: Apathy, blue-colored lips, cancer (especially lung, nasal, and larynx), contact dermatitis, diarrhea, fever, headaches, dizziness, gingivitis, insomnia, nausea, rapid heart rate, skin rashes (redness, itching, blisters), shortness of breath, stomatitis, and vomiting.

7Casdorph, H., M.D., and Walker, M., D.P.M. *Toxic Metal Syndrome* (Garden City Park, NY) Avery Publishing, 1995), 95. 8Kellas, B., Ph.D., and Dworkin, A., N.D. *Surviving the vomiting.*

The greatest danger from chronic nickel exposure is lung, nasal, or larynx cancers, and gradual poisoning from accidental or chronic low-level exposure, the risk of which is greatest for those living near metal smelting plants, solid waste incinerators, or old nickel refineries.\textsuperscript{24}

How Can We Protect Ourselves from Heavy Metals?

Logic dictates that, once the potential harm from heavy metals is understood, their production and use should be phased out and toxic storage heavily regulated. As is obvious from the list of exposure sources above, logic is not the guiding principle here, except in the case of lead, the use of which has been curtailed.

Even if all heavy metal production were to stop today, however, enough heavy metals have been released into our environment to cause chronic poisoning and
numerous neurological diseases for generations to come. There are presently
600,000 toxic waste contamination sites in the United States alone, according to
the U.S. Congressional Office of Technology Assessment. Of these, less than
900 have been proposed by the EPA for Superfund cleanup and approximately
19,000 others are under review. While some of these toxic messes were likely
caused by accidents or ignorance, the majority came from illegal dumping by
hazardous product or waste distributors, manufacturers, transportation
companies, or waste management companies. Such practices have not
ceased, as focus on profit continues to override concerns about health, the
environment, and a more promising future for all of our children.

With the government doing little or moving very slowly to protect the public from
the hazards of heavy metals, it is up to individuals to take measures to protect
themselves. According to conventional medicine, there is nothing a person can
do to address aluminum, arsenic, cadmium, lead, mercury, or nickel exposure,
aside from avoiding known sources. Given the prevalence of these toxins in our
lives, this is impossible.

Fortunately, there is a way to get these harmful substances out of the body.
Intravenous and oral chelation, detoxification protocols, and specific nutritional
therapies can remove heavy metals and chemical toxins and reduce the toxic
load our bodies endure on a daily basis.

Extreme Health's Oral Chelation Formula and studies are available for your
review on this web site, or call 1(800) 800-1285.

End of Part 1

Part 2: The Chelation Solution. What is intravenous and oral chelation?
Chelation and detoxification for metal poisoning & cardiovascular disease;
Nutritional deficiencies & nutrient replacement; Dietary recommendations.

Part 3: Ingredient rationale of Oral Chelation & Age-less Formula; Summary
of clinical studies; Conclusion.

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Elemental Analysis (Asheville, SC: Great Smokies Diagnostic Laboratories, 1999), 4.

10 Casdorph, H., M.D., and Walker, M., D.P.M. Toxic Metal Syndrome (Garden City


22 "Dental group agrees with FDA and EPA on issue of toxic mercury." Townsend Letter for Doctors 88 (November 1990), 720.


We welcome your questions be they by phone or email.

Your health is a vitally important and we are happy to answer your questions about oral chelation and its advantages for you.

Please don't hesitate to contact us at

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products purchased in this site contain clearly labeled product packaging, which must be read to ensure proper use. All information and statements regarding dietary supplements have not been evaluated by the Food and Drug Administration and are not intended to diagnose, treat, cure, or prevent any disease. It has not been conclusively established that oral chelation is an effective treatment or cure for any disease or condition or that it actually prevents or mitigates such harm. However, Extreme Health, Inc. believes that the use of its products is a responsible precautionary stop for those people who are informed and concerned about such matters.

The National Institute of Health recently began a five-year double blind study on the effects of intravenous chelation. Since qualified doctors have offered their patients chelation treatments for over thirty years, we all look forward to these results. Extreme Health has a doctor's label featuring the exact oral chelation formula that we sell directly to the public. We've sold this to doctors for over four years!

If any customer is not satisfied with Extreme Health’s Oral Chelation Formula we will refund the purchase price upon return of the unused product and proof of purchase to Extreme Health, Inc.